

Applicant: Bhalakia et al.
Serial No.: 09/848,594
Group Art Unit: 1773

PATENT
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AMENDMENTS TO THE CLAIMS

1. (Cancelled) An ophthalmic lens element comprising:

an injection molded, polymeric ophthalmic lens having a concave surface and a convex surface, and

a laminate bonded to the injection molded, polymeric ophthalmic lens, the laminate comprising, in the following order:

- a) a first resinous layer,
- b) a functional layer selected from the group consisting of a light polarizing layer and a photochromic layer, and
- c) a second resinous layer,

the first resinous layer being bonded to the convex surface of the injection molded, polymeric ophthalmic lens.

2. (Cancelled) The ophthalmic element of claim 1 wherein said polymeric ophthalmic lens consists essentially of a polycarbonate resin.

3. (Cancelled) The ophthalmic element of claim 1 wherein the first resinous layer is directly bonded by fusion to the polymeric ophthalmic lens.

4. (Cancelled) The ophthalmic element of claim 1 wherein the first resinous layer consists essentially of polycarbonate resin and is adhesively bonded to the polymeric ophthalmic lens.

5. (Cancelled) The ophthalmic element of claim 1 wherein the first resinous layer consists essentially of polycarbonate resin and is fused to the polymeric ophthalmic lens.

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6. (Cancelled) The ophthalmic element of claim 2 wherein the functional layer comprises a light polarizing layer.
7. (Cancelled) The ophthalmic element of claim 2 wherein the functional layer comprises a photochromic layer.
8. (Cancelled) The ophthalmic element of claim 4 wherein the functional layer comprises a light polarizing layer.
9. (Cancelled) The ophthalmic element of claim 4 wherein the functional layer comprises a photochromic layer.
10. (Cancelled) The ophthalmic element of claim 2 wherein the injection molded, polymeric ophthalmic lens has no ophthalmic prescription power.
11. (Cancelled) The ophthalmic element of claim 4 wherein the injection molded, polymeric ophthalmic lens has no ophthalmic prescription power.
12. (Cancelled) The ophthalmic element of claim 6 wherein the injection molded, polymeric ophthalmic lens has no ophthalmic prescription power.
13. (Cancelled) The ophthalmic element of claim 7 wherein the injection molded, polymeric ophthalmic lens has no ophthalmic prescription power.
14. (Cancelled) The ophthalmic element of claim 2 wherein the first resinous layer comprises a thermoplastic polymer.
15. (Cancelled) The ophthalmic element of claim 6 wherein the first resinous layer comprises a thermoplastic polymer.
16. (Cancelled) The ophthalmic element of claim 7 wherein the first resinous layer comprises a thermoplastic polymer.
17. (Cancelled) The ophthalmic element of claim 1 wherein the injection molded, polymeric ophthalmic lens has an ophthalmic prescription power.

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18. (Cancelled) The ophthalmic element of claim 2 wherein the injection molded, polymeric ophthalmic lens has no ophthalmic prescription power.
19. (Cancelled) The ophthalmic element of claim 6 wherein the injection molded, polymeric ophthalmic lens has an ophthalmic prescription power.
20. (Cancelled) The ophthalmic element of claim 7 wherein the injection molded, polymeric ophthalmic lens has an ophthalmic prescription power.
21. (Cancelled) The ophthalmic element of claim 3 wherein the injection molded, polymeric ophthalmic lens has an ophthalmic prescription power.
22. (Cancelled) The ophthalmic element of claim 4 wherein the injection molded, polymeric ophthalmic lens has an ophthalmic prescription power.
23. (Cancelled) The ophthalmic element of claim 5 wherein the injection molded, polymeric ophthalmic lens has an ophthalmic prescription power.
24. (Cancelled) The ophthalmic element of claim 1 wherein layer b) is an extruded layer.
25. (Cancelled) The ophthalmic element of claim 1 wherein layers a), b) and c) are extruded layers.
26. (Cancelled) The ophthalmic element of claim 4 wherein layer b) is an extruded layer.
27. (Cancelled) The ophthalmic element of claim 4 wherein layers a), b) and c) are extruded layers.
28. (Cancelled) The ophthalmic element of claim 8 wherein layer b) is an extruded layer.
29. (Cancelled) The ophthalmic element of claim 8 wherein layers a), b) and c) are extruded layers.

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30. (Cancelled) The ophthalmic element of claim 12 wherein layer b) is an extruded layer.

31. (Cancelled) The ophthalmic element of claim 12 wherein layers a), b) and c) are extruded layers.

32. (Cancelled) The ophthalmic element of claim 16 wherein layer b) is an extruded layer.

33. (Cancelled) The ophthalmic element of claim 17 wherein layers a), b) and c) are extruded layers.

34. (Cancelled) The ophthalmic element of claim 18 wherein layer b) is an extruded layer.

35. (Cancelled) The ophthalmic element of claim 20 wherein layers a), b) and c) are extruded layers.

36. (Cancelled) An optical element comprising:

a polymeric optical lens molded without any ophthalmic power having a concave surface and convex surface, and

a laminate bonded to the injection molded, polymeric optical element, the laminate comprising, in the following order:

- a) a first resinous layer,
- b) a functional layer selected from the group consisting of a light polarizing layer and photochromic layer, and
- c) a second resinous layer,

the first resinous layer being bonded to the convex surface of the injection molded, polymeric optical lens.

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37. (Cancelled) The optical element of claims 36 comprising a lens for eye-wear.
38. (Cancelled) The optical element of claims 36 wherein the functional layer comprises a polarizing layer.
39. (Cancelled) The optical element of claims 36 wherein the functional layer comprises photochromic layer.
40. (Cancelled) The optical element of claims 36 wherein the first resinous layer and the second resinous layer comprise polycarbonate resin.
41. (Cancelled) The optical element of claims 37 wherein the functional layer comprises a polarizing layer.
42. (Cancelled) The optical element of claim 37 wherein the functional layer comprises a photochromic layer.
43. (Cancelled) The optical element of claims 37 wherein the first resinous layer and the second resinous layer comprise polycarbonate resin.
44. (Cancelled) The optical element of claim 37 wherein the optical element is an optical lens.
45. (Cancelled) The optical element of claim 38 wherein the optical element is an optical lens.
46. (Cancelled) The optical element of claim 39 wherein the optical element is an optical lens.
47. (Cancelled) The optical element of claim 40 wherein the optical element is an optical lens.
48. (Cancelled) The optical element of claim 41 wherein the optical element is an optical lens.

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49. (Cancelled) The optical element of claim 42 wherein the optical element is an optical lens.

50. (Currently Amended) A laminate for [a] an injection molded eye lens comprising:

a first resinous layer;

a second resinous layer;

a polymeric functional layer disposed between said first and second resinous layer;

an adhesive adhering said polymeric functional layer to both said first and second resinous layer; and

said adhesive formulated to have sufficient flexibility so as to substantially prevent crazing during injection molding of said lens;

said laminate having a center thickness in the range of about .2mm to about 2mm on said injection molded lens; and,

said laminate having a generally round shape and being dimensioned so as to substantially conform to a back surface of said injection molded eye lens.

51. (Previously presented) A laminate according to claim 50, said adhesive formulated to also substantially prevent yellowing of said adhesive upon exposure of said lens to sunlight.

52. (Previously presented) A laminate according to claim 50, said adhesive formulated to also minimize shrinkage during curing of said molded lens.

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53. (Currently Amended) A laminate according to claim 50, wherein said adhesive is selected from the group consisting of acrylic-type, [epoxy-type] epoxy-type and urethane-type adhesives.

54. (Previously presented) A laminate according to claim 53, wherein said adhesive is a urethane adhesive.

55. (Previously presented) A laminate according to claim 50, wherein said molded lens has a prescription power.

56. (Previously presented) A laminate according to claim 50, wherein said molded lens has no prescription power.

57. (Previously presented) A laminate according to claim 50, wherein said functional layer is a polarizing layer.

58. (Previously presented) A laminate according to claim 50, wherein said functional layer is a photochromic layer.

59. (Withdrawn) An eye lens comprising:

a base portion;

a laminate portion;

said laminate portion including a first and second resinous layer separated by a functional layer;

said laminate portion having a center thickness in the range of about .2mm to about 2mm; and,

said lens having a center thickness no greater than about 22.0mm.

60. (Withdrawn) An eye lens according to claim 59, wherein said lens has substantially no prescriptive power.

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61. (Withdrawn) An eye lens according to claim 59, wherein said lens has prescriptive power.

62. (Withdrawn) An eye lens according to claim 59, further including an adhesive interposed between said first and second resinous layers and said functional layer.

63. (Withdrawn) An eye lens according to claim 61, wherein a curvature for such lens is selected from the group consisting of single vision, progressive multi-focal, aspheric, aspheric multi-focal, and stepped multi-focal lens.

64. (Withdrawn) An eye lens according to claim 59, wherein said functional layer is a polarizing layer.

65. (Withdrawn) An eye lens according to claim 59, wherein said functional layer is a photochromic layer.

66. (Withdrawn) An eye lens comprising:

a power portion;

a laminate comprising a first resinous layer, a second resinous layer, and a functional layer interposed between said first and second resinous layer, and an adhesive adhering said functional layer to both said first and second resinous layer; and

said power portion, said first resinous layer, said second resinous layer and said adhesive all being formed from compatible materials so as to substantially prevent degradation of any components of said lens over a useful life of said lens.

67. (Withdrawn) An eye lens according to claim 65, wherein said power portion, said first resinous layer and said second resinous layer are each formed of the same thermoplastic resin.

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68. (Withdrawn) An eye lens according to claim 66, wherein said adhesive is selected from the group consisting of acrylic-type, epoxy-type and urethane-type adhesives.

69. (Withdrawn) An eye lens according to claim 67, wherein said adhesive is a urethane-type adhesive.

70. (Withdrawn) A method of making an eye lens comprising:

providing a mold having at least one mold cavity;

inserting a functional film into said at least one mold cavity;

pre-heating said mold to a predetermined mold temperature;

injecting a molten material into said mold cavity against said laminate plate;

maintaining said molten material at a material temperature that is at least twice said predetermined mold temperature during the injecting of said molten material; and,

allowing said molten material to cool in said cavity so as to provide a lens wherein said material and said functional film are bonded together.

71. (Withdrawn) A method as set forth in claim 69, wherein said film is preformed into a predetermined curvature prior to insertion of said film into said mold.

72. (Withdrawn) A method as set forth in claim 70, wherein said film is formulated to include a polarizing layer prior to insertion of said film into said mold.

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73. (Withdrawn) A method as set forth in claim 70, wherein said film is formulated to include a photochromic layer prior to insertion of said film into said mold.

74. (Withdrawn) A method of making an eye lens comprising:

providing a mold having a mold cavity;

inserting a functional film into said mold cavity;

injecting a molten material into said mold cavity against said functional film;

maintaining said molten material and said mold cavity at predetermined temperatures during the injecting such that said functional film is sufficiently softened so as to permanently conform to a shape of said mold cavity; and

allowing said molten material to cool, thereby providing a lens wherein said material is bonded to said functional film.

75. (Withdrawn) A method as set forth in claim 73, wherein said functional film is formulated to include a polarizing layer prior to insertion of said functional film into said mold cavity.

76. (Withdrawn) A method as set forth in claim 73, wherein said functional film is formulated to include a photochromic layer prior to insertion of said functional film into said mold cavity.

77. (Withdrawn) A method of making an eye lens comprising:

providing a mold having a mold cavity;

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inserting a laminate film into a recess of said mold cavity, said laminate film including a functional layer interposed between a first and second resinous layer;

retaining said laminate film in said recess so as to correctly position said laminate film in said cavity; and

injecting a molten material into said mold cavity.

78. (Withdrawn) A method as set forth in claim 76, wherein said laminate is formulated to include a polarizing layer prior to insertion of said laminate film into said recess.

79. (Withdrawn) A method as set forth in claim 76, wherein said laminate is formulated to include a photochromic layer prior to insertion of said laminate film into said mold cavity.